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Academic Performance of Grade-10 Science Students as Affected by Traditional and Innovative Teaching Strategies

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Abstract: Academic performance is the measurement of students' achievement across various academic subjects reflecting classroom undertaking of tasks and results from standardized tests. This study used quasi-experimental research to determine the effectiveness of traditional and innovative teaching strategies, the learning performances, and the attitudes of 79 Grade-10 Science students. Thus, traditional teaching was applied to a control group while Innovative teaching strategy was applied to an experimental group. Both group were subjected to pretest, post-test. The result showed that the academic performance of the students had slightly improved their scores from pre-test to post-test using the traditional teaching strategy. However, their academic performance using the innovative teaching strategies had improved more from pre-test scores to post-test. Therefore, the innovative teaching strategies are effective teaching tools compare to traditional teaching strategy. Hence, There is significant difference between the pre-test and post-test performances of both group, moreover, the use of innovative teaching strategies are effective in teaching Science subject and increases students' academic performances based on the mean of weekly quizzes scores of students towards using innovative teaching strategies that the use of Video Clips is the most effective way of increasing the result of students' performance. The students' positive attitude towards the use of innovative teaching strategies resulted to as strongly agree. While the students negative attitude have changed in a positive manner. Paper suggested that, teachers should develop learning tasks as an instructional material in the teaching-learning process to strengthening academic performance of the students. Furthermore, this will serve as the reference for the future researches.
Keywords: Academic performance,

INTRODUCTION

Academic performance is the measurement of student's achievement across variousacademic subjects reflecting classroom undertaking of tasks and results from standardized tests. It is the most challenging goal in the teaching-learning process that besets every school all-over the globe. It does not exempt the Philippines and all-over the localities in the country both public and private institutions. It reflects the academic environment and personnel of the institution, including the teachers' strategies and students' learning styles that may influence their academic achievement.

Teaching strategies play an important role in classroom instruction to project information that connect with learners or engage them. They help learners participate, connect, and add excitement to the content being delivered. They can contain innovative tools that deviate from traditional methods of teaching in order to better engage students and meet their individual needs where each student is different and therefore requires a unique approach to learning. Innovative teaching strategies incorporated as recent trends in education suggest that a more personalized, student centered approach to teaching is more effective than traditional with the ultimate goal to find what works best for the students so that they can reach their full potential (Isha, 2020).

Innovative teaching strategies are reported by various studies to have inevitably influenced teachers to think beyond textbooks to engage the learners in the classroom and make them understand the concepts better (Kaluvoya, 2022). They include among others some tools known as video clips, cooperative learning and power point presentations that enable learning among students. Moreover, the effect of these strategies is influenced by how the teacher adapts and applies the right strategy to deal with the target group and help students learn the desired course content and achieve the intended learning outcomes.

These are used for the intended learning outcomes that should guide which approach best suits the achievement of those outcomes.

Statement of the Problems

This study aimed to find out the effectiveness of traditional teaching strategy and innovative teaching strategies and discover the best among video clips, cooperative learning and power point presentation. Particularly, this study aims to:

Determine the academic performance of the students when applied with traditional teaching strategy;

Determine the academic performance of the students when applied with innovative teaching strategies;

Compare the differences in the mean gain scores of the students between the experimental group and control group;

Compare the quiz performances of the students when applied with the following innovative teaching strategies:

4.a. Video Clips

4.b. Cooperative Learning; and

4.c. Power Point Presentation

Assess the attitude of the students when applied with the following innovative teaching strategies:

A. video Clips,

B. cooperative learning, and

C. power Point Presentation.

METHODOLOGY

This chapter presents the flow of the study. It includes the research design, respondents of the study, locale of the study, data gathering procedure and instruments and statistical treatment of the data.

Research Design

The study used quasi-experimental design. It consisted of control and experimental groups. It investigated the effects of the use of Traditional teaching strategy and Innovative teaching strategies in students' academic achievement under the Science 10 Quarter Two and Three lessons.Pertinent data were obtained from the following sources: (a) Pre-test and Post-test (b) Quizzes and (c) a survey questionnaires of Attitude towards the use of Innovative teaching strategy. The statistical tools used were summary descriptive statistics such as mean and standard deviation. Analysis of the Variance (ANOVA) and Post Hoc Analysis was also employed. The 0.05 level of significance was adopted.

Respondents of the Study

The respondents of the study were all the 79 grade-10 students of Sharif Awliya Academy, Inc. Academic year 2022-2023. The students were divided into two, the experimental group and the control group. The experimental group is composed of 38 students while the control group is composed of 41 students

Locale of the Study

The study was conducted at Sharif Awliya Academy, Inc. It is 50 meters away from the National Highway and 20 kilometres from Mindanao state University Graduate Studies.

Data Gathering Procedure and Instruments

The innovative teaching strategies were used on the experimental group. For the data collection, the pre-test had been developed which composed of 50 multiple choice questions for each teaching strategy. This test was administered as the first part of the study using the test questionnaires. The Quizzes administered after the lecture then the Post-test was also administered after the lesson had been presented using innovative teaching strategies and traditional teaching strategy with same sets of questions in the pre-test, and Post-test. The topics in science were presented to the students every week. After the intervention, the respondents took the quizzes and post-test. The generated pre-test, quizzes and post-test results were analyzed and calculated the mean gain scores with the help of the statistician.

The questionnaires on the positive attitude indicators and negative attitude indicators were distributed to the students under innovative teaching strategies and rated them based on the 5-point rating scale and description for their reference after the post-test.

The data gathering procedure is summarized in the following diagram.

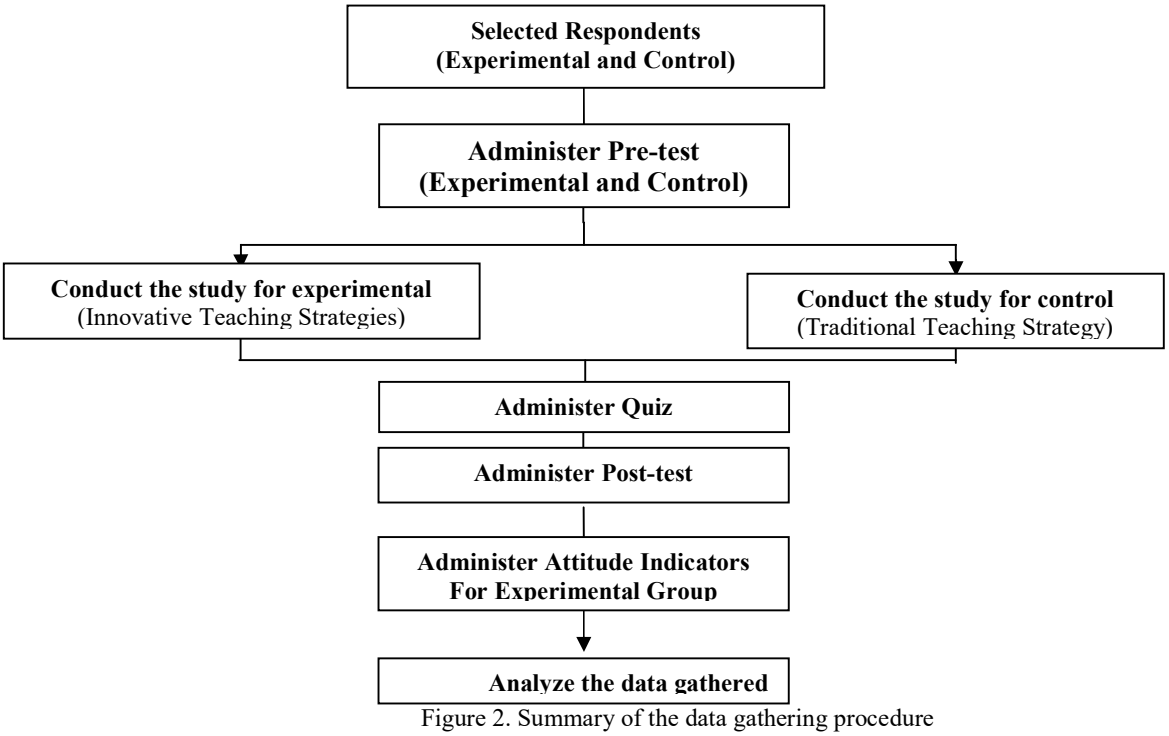

Figure 2. Summary of the data gathering procedure

Statistical Treatment of the Data

This study focused on the assessment of the effectiveness of Traditional teaching strategy and Innovative teaching strategies. To determine the level of students' achievement in the pre-test, quizzes, and post-test of the traditional teaching strategy (Control Group) and Innovative teaching strategies were used (Experimental Group). To determine the academic achievement of the students, t-test is also used. In addition, the t-test analysis is used to determine the significant difference between the mean gain scores of the two teaching and learning tools.

Rating Scale for Student Achievement

The students' scores in the pre-test and post-test are used to rate students' achievement using the rating scale adopted from the Department of Education Order No. 8 series of 2015 as follows:

Range Score	Descriptive Rating
40-50 points	Outstanding
35-39 points	Very Satisfactory
30-34 points	Satisfactory
25-29 points	Fairly Satisfactory
24 points and below	Does not meet the expectations

The students' scores in the quizzes are used to rate the students' achievement using the rating scale as follows:

Range Scores	Descriptive Rating
25-30 points	Outstanding
19-24 points	Very Satisfactory
13-18 points	Satisfactory
7-12 points	Fairly Satisfactory
1-6 points	Does not meet the expectations

And the questionnaires on the positive attitude indicators and negative attitude indicators were rate base on the 5-points rating scale.

Legend:

Scale	Description
4.21-5.00	Strongly Agree
3.41-4.20	Moderately Agree
2.61-3.40	Agree
1.81-2.60	Disagree
Strongly Disagree	

RESULT AND DISCUSSIO

This chapter displays the gathered data through tabular presentation, and followed by textual discussions of its analysis and interpretation. This includes the academic performance of students in Pre-test, Quizzes, and Post-test using traditional and innovative teaching strategies. Also the attitude of students under experimental group.

Academic Performance of the Students Using Traditional Teaching Strategy in Pre-Test And Post-Test

The academic performance of the science-10 students in the pre-test and post-test under the control group is presented in Table 1.

Table 1

Academic Performance of the Control Group of Science-10 Students in the Pre-test and Post-test (n=41).

	Pre-test		Post-test	
Scale	**f**	**Percentage**	**f**	**Percentage**
40-50	0	0 %	0	0%
35-39	0	0%	1	2.44%
30-34	0	0%	20	48.78%
25-29	0	0%	20	48.78%
0-24	41	100%	0	0%

Legend:

Range Score	**Descriptive Rating**
40-50 points	Outstanding
35-39 points	Very Satisfactory
30-34 points	Satisfactory
25-29 points	Fairly Satisfactory
Below 24 points	Does not meet the expectations

The academic performance of the control group (with traditional lecture) in the pre-test is within the score range of 0-24, described as "does not meet expectations" obtained by 100% (f = 41) of the students while in the post-test, the highest score of 35-39, described as "Very Satisfactory," is obtained by only 2.44% (f = 1) of the students. The post-test score ranges of 30-34, described as "Satisfactory" and 25-29, described as "Fairly Satisfactory" are obtained by equally 48.78% (f = 20) of the students, respectively. Generally, the post-test performance has a mean of 33.32 which is described as "Satisfactory."

The result implies that exposure to the traditional lecture brings slight improvement in the performance of the students.

Academic Performance of the Students Using Traditional Teaching Strategy in Quizzes

The academic performance of the students in the science subject using traditional strategy in quizzes is presented in Table 2.

Table 2

Academic Performance of the Control Group of Science-10 Students in the 6 Weekly Quizzes (n=41).

Quizzes			
Scale	**f**	**Percentage**	**Descriptions**
25-30	0	0%	Outstanding
19-24	31	75.61%	Very Satisfactory
13-18	10	24.40%	Satisfactory
7-12	0	0%	Does Not Meet Expectations
1-6	0	0%	Does Not Meet Expectations

Legend:

Range Score	**Descriptive Rating**
40-50 points	Outstanding
35-39 points	Very Satisfactory
30-34 points	Satisfactory
25-29 points	Fairly Satisfactory
Below 24 points	Does not meet the expectations

The academic performance of the control group (with traditional lecture) in the weekly quizzes shows the highest at 75.61% (31 out of 41) of the students scored 19-24 points described as "Very Satisfactory" and the lowest at 24.40% (10 out of 41) of students obtained score ranging 13-18 points and described as satisfactory. This implies that the use of traditional lecture had a big improvement in the score performance of students.

A similar outcome was seen in the study, which weekly quizzing can enhance student retention of the material presented during lecture or prepare them for high stakes examinations (Johnson and Kiviniemi, 2009) and students taking quizzes can perform better in final achievement tests (Gholami and Moghaddam, 2013). Quizzes are assessment tool that can help students to retrieve their knowledge and receive feedback on their performance immediately (Heise et al., 2020).

Academic Performance Of The Students Using Innovative Teaching Strategies In Pre-Test

The academic performance of the students in the science subject using innovative teaching strategies in pre-test is presented in Table 3.

Table 3

Academic Performance of Science Students in Pre-test Under Experimental Group

	Video Clips		**Cooperative Learning**		**PPT**	
Scale	**f**	**Percentage**	**f**	**Percentage**	**f**	**Percentage**
40-50	0	0%	0	0%	0	0%
35-39	0	0%	0	0%	0	0%
30-34	0	0%	0	0%	0	0%
25-29	1	2.63%	4	10.53%	0	0%
0-24	37	97.37%	34	89.47%	38	100%

Legend:

Range Score	**Descriptive Rating**
40-50 points	Outstanding
35-39 points	Very Satisfactory
30-34 points	Satisfactory
25-29 points	Fairly Satisfactory
24 points and below	Does not meet the expectations

The table 3 illustrates the academic performance of experimental group in pre-test using innovative teaching strategies.

As displayed in the table, in video clips majority of the students frequency is 37 out of 38 obtained a score ranging from 0-24 with a percentage of 97.37%described as "Does not meet the expectations" while in cooperative learning with the frequency of 34 out of 38 obtained a score ranging from 0-24 with a percentage of 89.47% described as "Does not meet expectations" and in power point presentations with the frequency of 38 out of 38 obtained a score ranging from 0-24 with a percentage of 100% described as "Does not meet the expectations".

The table also depicts that in pre-test, under video clips there is only one (1) student obtained the highest score ranging 25-29 with a percentage of 2.63% described as "Fairly satisfactory" while in cooperative learning there are four (4) students obtained the highest score ranging 25-29 with a percentage of 10.53% described as "Fairly Satisfactory". On the other hand in power point presentation no one got the highest scores during pre-test.

It implies that students from Cooperative learning strategy shows a highest pre-test scores performance among video clips and power point presentations' strategy.

Academic Performance of the Students Using Innovative Teaching Strategies in Post-test

The academic performance of the students in the science subject using innovative teaching strategies in post-test is presented in Table 4.

Table 4

Academic Performance of Science Students in Post-test Under the Experimental Group.

	Video Clips		Cooperative Learning		PPT	
Scale	**f**	**Percentage**	**f**	**Percentage**	**f**	**Percentage**
40-50	12	31.58	34	89.47%	0	0%
35-39	15	39.47	4	10.53%	25	65.79%
30-34	9	23.68	0	0%	13	34.21%
25-29	2	5.26%	0	0%	0	0%
0-24	0	0%	0	0%	0	0%

Legend:

Range Score	**Descriptive Rating**
40-50 points	Outstanding
35-39 points	Very Satisfactory
30-34 points	Satisfactory
25-29 points	Fairly Satisfactory
Below 24 points	Does not meet the expectations

The table 4 illustrates the academic performance of experimental group in post-test using innovative teaching strategies.

As displayed in the table, majority of the students in video clips with frequency of 15 out of 38 obtained a score ranging from 35-39 with a percentage of 39.47% described as "Very satisfactory". While in cooperative learning, most of students with the frequency of 34 out of 38 obtained a score ranging from 40-50 with a percentage of 89.47% described s "Outstanding". And in the power point presentation, many students obtain the frequency of 25 out of 38 got a score ranging from 35-39 with a percentage of 65.79% described as "Very satisfactory"

In can also be seen from the data, that in post-test there are twelve (12) students in video clips who obtained the highest score ranging from 40-50 with a percentage of 31.58% described as Outstanding. However in cooperative learning there are thirty four (34) students who obtained the highest score ranging from 40-50 with the percentage of 89.47 described as "Outstanding" and in power point presentation there are twenty five (25) students who obtained the highest score ranging from 35-39 with a percentage of 65.79 described as "Very satisfactory". From this finding, it can be inferred that students' exposure to innovative teaching strategies as a learning tool improved their scores performance in post-test. Further, cooperative learning brings more improvement among video clips and power point presentations.

Similarly, Obaya (2012) the average retention rate of learning by lecture is 5% while that of practice by doing (Activity-Oriented) is about 75%. It can be seen that retention rate increases progressively with the use more interactive and activity-oriented teaching methods.

Academic Performance of the Students Using Innovative Teaching Strategies in Quizzes.

The academic performance of the students in the science subject using experimental group in quizzes is presented in Table 5.

Table 5

Academic Performance of the Experimental Group of Science-10 students in the 6 weekly quizzes (n=38).

Quizzes			
Scale	**f**	**Percentage**	**Descriptions**
25-30	23	60.53%	Outstanding
19-24	15	39.47%	Very Satisfactory
13-18	0	0%	Does Not Meet the Expectation
7-12	0	0%	Does Not Meet the Expectation
1-6	0	0%	Does Not Meet the Expectation

Legend:

Range Score	**Descriptive Rating**
40-50 points	Outstanding
35-39 points	Very Satisfactory
30-34 points	Satisfactory
25-29 points	Fairly Satisfactory
24 points and below	Does not meet the expectations

Table 5 shows the scores of experimental group in quizzes. It reflects that the quizzes result shows highest at 60.53% (23 out of 38) of the students scored 25-30 points described as Outstanding and lowest at 39.47% (15 out of 38) of students obtained scores ranging 19-24 points and described as Very Satisfactory.

This means that the result shows the academic performance of the students in quizzes is better when innovative teaching strategies is used. Indeed, a recent study has demonstrated that the use of quizzes can promote student's attendance, engagement, and achievement (AlBahadli, 2020). Further, in using innovative teaching strategy, the students' quizzes stimulate practice and review, give the students opportunities for feedback and have a positive influence on students study time.

Comparison of the Differences in the Mean Gain Scores on the Pre-test and Post-test between the Control and Experimental groups

The difference in mean gain scores on the pre-test and post-test between the control group and the experimental group

using the innovative teaching strategies in Science subject is presented in Table 6.

Table 6
The Difference in the Mean Gain Scores of the Control and Experimental Groups on the Pretest and Posttest

Group	Pre-test Mean	SD	Post-test Mean	SD	Mean Difference	t-value	p-value	Description
Control	55.93	8.02	89.10	6.50	33.17	-23.73	0.000**	Significant
Expe-	54.87	7.14	117.55	5.85	62.68	-37.99	0.000**	Significant

** significant at 0.01 level

Table 6 shows the difference in the mean gain scores of the control and experimental groups on the pretest and posttest. It shows that the pre-test of control group has a mean and standard deviation of *X=55.93* and *SD=8.02.* Meanwhile, the post-test has a mean and standard deviation of *X*=89 and *SD*=6.50, respectively. The mean difference is 33.17 with t-value of -23.73. The computed p-value is 0.000 which is significant at 1% and 5% level of significance. The pre-test in the experimental group has a mean and standard deviation of *X*=54.87 and *SD*=7.14. Meanwhile, the post-test has a mean and standard deviation of *X*=117.55 and *SD*=5.85, respectively. The mean difference is 62.68 with t-value of -37.99. The computed p-value is 0.000 which is significant at 1% and 5% level of significance.

Results indicate that the performance of students had improved with the use of innovative teaching strategies. This further implies that innovative teaching strategies was effective for learning performance of the students since the mean gain score of Experimental group was higher than that of the Control group.

Comparison of the Differences in the Mean Gain Scores on the Post-test between the Control and Experimental Groups

The difference in mean gain scores performance on the post-test between the control group and the experimental group is presented in Table 7.

Table 7
The Difference of the Mean Scores of the Post-test Performance of Control Group and Experimental Group.

Post-test Result	Mean	Mean Differences	t-value	p-value	Description
Control	89.10	28.45	-20.48	0.000**	Significant
Experimental	117.55				

** significant at 0.01 level

The study evaluated the difference of the mean scores of the post-test performance of the control and experimental groups.

Table 7 shows the results of the control group consisting of 41 respondents got a mean scores of 89.10. Experimental group, on the other hand consisting of 38 respondents, obtained a mean scores of 117.55 and the mean difference is 28.45. Using t-test, the t-value is -20.48 and p-value is 0.000. Then there is significant difference in the mean scores performance of the post-test of the control group and the experimental group.

This means that the mean gain scores of experimental group is better than the control group and it is *significant*. Furthermore, it implies that the use of Innovative Teaching Strategy in Science class was effective. In the study of McMullen (2022), using innovative teaching strategies in the classroom can make learning easier and more effective. Experimenting with diverse strategies in the classroom is an interactive process that will assist teachers in promoting learning to encourage student growth.

Comparison of the Quiz Performance of the Students Towards the Use of Innovative Teaching Strategies

The comparison of the quiz performance of the experimental group based on the use of innovative teaching strategies is presented in Table 8 and 9.

Table 8
Comparison of the Quiz Performance of the Experimental Group Based on the Use Innovative Teaching Strategies

	Sum of Square	df	Mean Square	F	p-value
Between Groups	205.929	2	102.964	8.427	.000
Within Groups	989.643	81	12.218		
Total	**1195.571**	**83**			

Table 8 shows the quizzes performances of the experimental group using innovative teaching strategies (Video Clips, Hands on Learning and using Power point presentation). By using Analysis of the Variance (ANOVA), it is found out that the use of innovative teaching strategies had a significant impact on the performance of students in the quizzes *F(2,81) = 8.427, p =0.001.* The p-value is less than 0.05 which means that it is significant at 0.05 and 0.01 levels. To determine which strategies had significant impact on the quizzes performance, a Post Hoc analysis was used. The data of the analysis is shown in table 9.

Table 9

Post Hoc Analysis of the 3Innovative Teaching Strategies

Innovative Teaching Strategies	Mean Differences	p-value	Descriptions
Video Clips and Cooperative Learning	3.32	0.002*	Significant
Video Clips and Power Point Presentation	3.32	0.002*	Significant
Cooperative Learning and Power Point Presentation	0.000	1.000	Not significant

* significant at 0.05 level

The Post Hoc Analysis was conducted since the ANOVA result shows a significant difference between groups. Each strategy was paired with the other. Video Clips and Cooperative Learning shows a significant difference *p= 0.002* .this significant at 0.5% level. The Video Clips and Power point Presentation had also a significant difference *p= 0.002.* This is significant at 5% level. However, Cooperative Learning and Power Point Presentation had no significant difference *p= 1.000.*

This result shows, based on the mean of quiz with the use of Video Clips is the most effective way of increasing the result of students' performance.

In addition, the results of the study was supported by Rice, Beeson, and Wright, (2019)that the performance of the students on tests significantly improved after watching the video with embedded questions throughout quizzes.

Positive Attitude Indicators of the Students Towards the Use of Innovative Teaching Strategy

The positive attitude indicators of the students in Science Subject towards the use of innovative teaching strategies is presented in Table 10.

Table 10

Positive Attitudes Indicators (PAIs) Towards the Use of Video Clips Strategy

Indicators	Mean	Description
With this video clips teaching learning tool, I:		
1. Enjoyed using it as a learning tool.	4.79	Strongly Agree
2. Learned new trends about doing science lesson.	4.89	Strongly Agree
3. Understood the teaching of science lesson.	4.74	Strongly Agree
4. Developed my ability to analyze the deeper meaning Of science concepts, and;	4.74	Strongly Agree
5. Appreciated the science subject even more.	4.76	Strongly Agree
Overall Mean	**4.78**	**Strongly Agree**

Legend:

Scale	Description
4.21-5.00	Strongly Agree
3.41-4.20	Moderately Agree
2.61-3.40	Agree
1.81-2.60	Disagree
1.00-1.08	Strongly Disagree

Table 10 reflects the mean distribution of the positive attitude Indicators (PAIs) towards the use of video clips strategy.

The statement with highest mean (mean=4.89) is statement 2 "Learned new trends about doing science lesson" described as strongly agree. The result implies that the students are satisfied towards the use of video clips strategy.

The statement with lowest mean (mean=4.74) are statements 3 and 4 "understood the teaching of science lesson" and "developed my ability to analyze the deeper meaning of science concepts" describe as strongly agree. The result implies that the students are satisfied towards the use of video clips strategy.

The overall mean (mean=4.78) described as strongly agree also implies that the students are strongly agree towards the use of video clips strategy. This supports the study that watching educational video clips affected the academic performance and activities of the students positively (Ali, 2019).

Positive Attitude Indicators of the Students towards the Use of Innovative Teaching Strategy

The positive attitude indicators of the students in Science Subject to wards the use of innovative teaching strategies is presented in Table 11.

Table 11 shows the mean distribution of the positive attitude indicators (PAIs) towards the use of hands on learning strategy. Statement 2 and 5 "learned new trends about doing science lesson" and "appreciated the science subject even more" got the same highest mean (mean=5) described as strongly agree. It implies that the students were satisfied towards the use of cooperative learning strategy.

The statement 3 "understood the teaching of science lesson" got the lowest mean of 4.89 describes as strongly agree. The result implies that the students are also satisfied towards the use of cooperative learning strategy.

In sum, the overall mean of the five statements was 4.96 described as strongly agree. The result implies that the students toward the use of hands on learning strategy is strongly agree.

Table 11

Positive Attitudes Indicators (PAIs) Towards the Use of Cooperative Learning Strategy.

Indicators	Mean	Description
With this Cooperative Learning as teaching learning tool, I:		
1. Enjoyed using it as a learning tool.	4.95	Strongly Agree
2. Learned new trends about doing science lesson.	5	Strongly Agree
3. Understood the teaching of science lesson.	4.89	Strongly Agree
4. Developed my ability to analyze the deeper meaning of science concepts, and;	4.97	Strongly Agree
5. Appreciated the science subject even more.	5	Strongly Agree
Overall Mean	**4.96**	**Strongly Agree**

Legend:

Scale	Description
4.21-5.00	Strongly Agree
3.41-4.20	Moderately Agree
2.61-3.40	Agree
1.81-2.60	Disagree
1.00-1.08	Strongly Disagree

Positive Attitude Indicators of the Students towards the Use of Innovative Teaching Strategy

The positive attitude indicators of the students in Science Subject towards the use of innovative teaching strategies are presented in Table 12.

Table 12 shows the mean distribution of the positive attitude indicators (PAIs) towards the use of power point presentations strategy. Statement 5 "appreciate the science subject even more" got the highest mean of 4.89 described as strongly agree. It implies that the students were satisfied towards the use of power point presentation strategy.

The statement 3 "understood the teaching of science lesson" got the lowest mean 4.89 described as strongly agree. The result implies that the students are also satisfied towards the use of cooperative learning strategy.

To sum it up, the overall mean of the five statements was 4.77 described as strongly agree. The result implies that the students toward the use of power point presentations strategy are strongly agree.In the study of Acuna (2020) using power point presentations, subject easier to understand and make subject possible and attainable.

Table 12

Positive Attitudes Indicators (PAIs) Towards the Use of Power Point Presentation Strategy

Indicators	Mean	Description
With this Power Point Presentation as teaching learning tool, I:		
1. Enjoyed using it as a learning tool.	4.74	Strongly Agree
2. Learned new trends about doing science lesson.	4.79	Strongly Agree
3. Understood the teaching of science lesson.	4.68	Strongly Agree

4. Developed my ability to analyze the deeper meaning of science concepts, and;	4.74	Strongly Agree
5. Appreciated the science subject even more.	4.89	Strongly Agree
Overall Mean	**4.77**	**Strongly Agree**

Legend:

Scale	**Description**
4.21-5.00	Strongly Agree
3.41-4.20	Moderately Agree
2.61-3.40	Agree
1.81-2.60	Disagree
1.00-1.08	Strongly Disagree

Negative Attitude Indicators of the Students Towards the Use of Innovative Teaching Strategy

The negative attitude indicators of the students in Science Subject towards the use of innovative teaching strategies is presented in Table 13.

Table 13

Negative Attitudes Indicators (NAIs) Towards the Use of Video Clips Strategy

Indicators	**Mean**	**Description**
With this video clips as teaching learning tool, I:		
1. Was passive to science lesson.	1.05	Strongly Disagree
2. Easy got bored using this teaching learning tool.	1.03	Strongly Disagree
3. Easy got tired using this teaching learning tool.	1	Strongly Disagree
4. Found teaching learning tool difficult, and;	1.08	Strongly Disagree
5. Perceived teaching learning tool as a waste of time.	1	Strongly Disagree
Overall Mean	**1.03**	**Strongly Disagree**

Legend:

Scale	**Description**
4.21-5.00	Strongly Agree
3.41-4.20	Moderately Agree
2.61-3.40	Agree
1.81-2.60	Disagree
1.00-1.08	Strongly Disagree

There are 5 statements for the Negative Attitude Indicators. With this video clips strategy, the statement 4 "Found teaching learning tool difficult" with the mean of 1.08 is the indicator that was rated the highest by the student-participants as "Strongly disagree". Also the other 4 indicators are rated as "Strongly disagree" by the student-participants; "I was passive to science lesson" (mean =1.05), "I easily got bored using teaching learning tool", (mean = 1.03), "I easily got tired using this teaching learning tool" (mean = 1), and "I perceived teaching learning tool as a waste of time" with the same mean of 1 which are the lowest mean.

An overall mean of 1.01 is shown on the result as strongly disagree. This explains that the innovative teaching strategy does not affect the experimental group negatively. The attitudes of the students on video clips strategy have changed in a positive manner.

Negative Attitude Indicators of the Students towards the Use of Innovative Teaching Strategy

The negative attitude indicator of the students in Science Subject towards the use of innovative teaching strategies is presented in Table 14.

Table 14

Negative Attitudes Indicators (NAIs) Towards the Use of Cooperative Learning Strategy

Indicators	**Mean**	**Description**
With this Cooperative Learning as teaching learning tool, I:		
1. I was passive to science lesson.	1	Strongly Disagree
2. Easy got bored using this teaching learning tool.	1	Strongly Disagree

3. Easy got tired using this teaching learning tool.	1.05	Strongly Disagree
4. Found teaching learning tool difficult, and;	1	Strongly Disagree
5. Perceive teaching learning tool as a waste of time.	1	Strongly Disagree
Overall Mean	**1.01**	**Strongly Disagree**

Legend:

Scale	Description
4.21-5.00	Strongly Agree
3.41-4.20	Moderately Agree
2.61-3.40	Agree
1.81-2.60	Disagree
1.00-1.08	Strongly Disagree

Table 14 shows the negative attitude indicators (NAIs) towards the use of hands on learning strategy, "easy got tired using this teaching learning tool with a mean of 1.05 is the indicator that was rated the highest by the student-participants as "strongly disagree"

The other 4 indicators got the same means, "I was passive to science lesson" (mean = 1), "I easily got bored using this teaching learning tool" (mean = 1), "I found teaching learning tool difficult" (mean =1) and "I perceived teaching learning tool as a waste of time" (mean =1) were described as strongly disagree.

An overall mean of 1.01 is shown on the result as Strongly disagree. This explains that the innovative teaching strategy does not affect the experimental group negatively. The attitudes of the students on cooperative learning strategy have changed in a positive manner.

Negative Attitude Indicators of the Students Towards the Use of Innovative Teaching Strategy

The negative attitude indicators of the students in Science Subject towards the use of innovative teaching strategies is presented in Table 15.

Table 15

Negative Attitudes Indicators (NAIs) Towards the Use of Power Point Presentation Strategy.

Indicators	Mean	Description
With this Power Point Presentation as teaching learning tool, I:		
1. Was passive to science lesson.	1.11	Disagree
2. Easy got bored using this teaching learning tool.	1.32	Disagree
3. Easy got tired using this teaching learning tool.	1.09	Disagree
4. Found teaching learning tool difficult, and;	1.13	Disagree
5. Perceive teaching learning tool as a waste of time.	1	Strongly Disagree
Overall Mean	**1.13**	**Disagree**

Legend:

Scale	Description
4.21-5.00	Strongly Agree
3.41-4.20	Moderately Agree
2.61-3.40	Agree
1.81-2.60	Disagree
1.00-1.08	Strongly Disagree

Table 15 shows the negative attitude indicators (NAIs) towards the use of power point presentations strategy. Statement "easy got tired using this teaching learning tool (mean = 1.32) is the indicator that was rated the highest by the student-participants as "strongly disagree"

The three NAIs with this power point presentations learning tool, "I was passive to science lesson" (mean = 1.11), "I easily got tired using this teaching learning tool" (mean = 1.09), and "I found teaching learning tool difficult" (mean = 1.13) were described as strongly disagree. The last indicator, "I perceived teaching learning tool as a waste of time" (mean = 1) which is also classified as strongly disagree.

An overall mean of 1.13 is shown on the result as strongly disagree. This explains that the innovative teaching strategy does not affect the experimental group negatively. The attitudes of the students on power point presentations strategy have changed in a positive manner.

CONCLUSION

The result shows that the academic performance of the students had slightly improved their scores from pre-test to post-test when applied with traditional teaching strategy. While academic performance of the students when applied with innovative teaching strategies had more improved pre-test scores to their post-test. However, the academic performance of both groups have improved their weekly quizzes scores, therefore, the Innovative teaching strategies are effective teaching tools since it has highest scores

performance both in post-test and quizzes compare to Traditional teaching strategy.

Comparatively similar performances in the pre-test and significantly higher difference in the post-test performances between the two groups. There is significant difference between the pre-test and post-test performances of both groups. Thus, the use of innovative teaching strategies are effective in teaching Science Subject and increases students' academic performances. Based on the mean of weekly quizzes scores of students towards using innovative teaching strategies with the use of Video Clips is the most effective way of increasing the result of students' performance. The positive attitude of the students towards the use of innovative teaching strategies are results as strongly agree. While the negative attitude of students have changed in a positive manner.

RECOMENDATION

Administratorors and teachers should include the Innovative Teaching Strategies such as Video Clips, Cooperative Learning and Power Point Presentation not only in Science but also with the curricula of other subjects. Teachers should develop learning tasks as an instructional material in the teaching-learning process to strengthening academic performance of the students. Further, more strategies should be develop by other researchers to increase the knowledge, comprehension, analysis and attitude development of the students.

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